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REMARKS

Reconsideration of the above-identified application is respectfully requested.

The Examiner has rejected claim 28 under 35 U.S.C. §102(b) as being clearly anticipated by JP 63274740, JP 09049051, JP 11293410, or JP 08325673. Applicants respectfully traverse.

The abstracts of the cited prior art refer to an alloy material. They do not, however, anticipate a component compound of an alloy for use "in molten melts which include magnesium" as claimed in claim 28 of the present invention. JP 63274740 is directed to a sintered rocker arm of a V-type 6-cylinder gasoline engine. Such an engine is not intended to contact molten magnesium. JP 09049051 is directed to surface layers of rolls made of iron alloys to improve resistance against heat cracking and surface roughening without deteriorating wear resistance due to segregation of Ce and B at grain boundaries. JP 11293410 is directed to hardened steel having good mechanical properties. JP 08325673 is directed to rolls suitable for use in hot strip mills. Nowhere do the cited references suggest the use of the alloys for submersion in molten magnesium. The present invention teaches that it is known that alloys have a relatively short life because of the destructive effects of the molten metal on the components contacting the molten metal (page 1, lines 22-25). The cited references do not suggest an ability to overcome this problem.

Moreover, the Examiner has stated that an intended use clause found in the preamble of an apparatus/product claim is not afforded the effect of a distinguishing limitation unless the body of the claim sets forth structure which refers back to, is defined by, or otherwise draws life and breath from the preamble. However, the Examiner

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separated these claims via restriction from pure alloy claims. Accordingly, the claimed limitations for use of the alloy in construction of a component for use in molten magnesium are necessary to give meaning to the claims (claim 28). Withdrawal of the rejection is thus respectfully requested.

The Examiner has rejected claims 2-27, 29, and 34 under 35 U.S.C. § 103 (a) as being unpatentable over JP 09049051, claims 2, 4-7, 10-27, 29, and 34 under 35 U.S.C. § 103(a) as being unpatentable over JP 08325673, claims 2-4, 6-13, 16-27, 29, and 34 under 35 U.S.C. § 103(a) as being unpatentable over JP 63274740, and claims 2-9, 14-27, 29, and 34 under 35 U.S.C. § 103(a) as being unpatentable over JP 11293410. Applicants respectfully traverse.

The cited abstracts do not suggest the use of the alloys in molten magnesium and, in addition, as the recited components of a molten metal pump. First, while the Examiner has concluded that the limitations of claim 28 are shown in the prior art, it would not be obvious from the cited art that the present invention would have a higher resistance to molten magnesium, and provides exceptional substitution as components of a molten magnesium pump. Claim 28 has been amended to specifically recite pump components. The component of the pump does not, therefore, read on the cited references. The Examiner has provided no basis that the materials of the cited JP references would be used to construct Applicants claimed molten magnesium pump components.

Furthermore, with respect to the rejection over JP 63274740, the Examiner states that the claimed 0.5 wt% B is anticipated by the reference. Applicants respectfully note that the reference includes a range of 0.5-2.5 wt%. The present invention, by contrast, includes a claimed limitation of B below the range of the Japanese patent. Specifically,

claim 4 includes a B range of between about 0.15 and 0.5 wt%. Claim 5 includes a B limitation between about 0.2 and 0.3 wt%. Moreover, the phosphorus limitation of claim 7 of the present invention, allows much less phosphorus in the present alloy than the less than 0.05 wt% in the Japanese abstract. The Examiner has provided no explanation as to why the skilled artisan would select Applicants' claimed range of each of the recited constituents as opposed to the range disclosed in the reference of record. Accordingly, withdrawal of the rejection is respectfully requested.

With respect to the rejection over JP 08325673, the Examiner has stated that the reference discloses 3-8 wt% vanadium and 0.1-2 wt% niobium, which are anticipated by the claimed 3 wt% V and 2 wt% Nb in the present invention. Applicants note that the present application actually claims a range of 0.5-3 wt% V (claim 16), less than the lower limit of vanadium in the reference of record, and a range of 2-4 or 2.8-3.2 wt% Nb (claims 17 and 18), both of which are greater than the ranges cited in the reference of record. The Examiner has again provided no explanation as to why the skilled artisan would select Applicants' claimed range of each of the recited constituents as opposed to the range disclosed in the reference of record.

Moreover, the examiner states that with respect to the claimed contents of S, P, Si, and Ta, the claimed ranges include zero and the cited reference is thus not required to recite said elements. Applicants respectfully note that the present invention specifies a concentration of less than about 1 wt% Si (claim 10) and less than about 4.5 wt% Ta (claim 22). The reference of record makes no reference to either Si or Ta. Therefore, there is no guidance for the skilled artisan in the reference of record to select Si or Ta as a possible component of the alloy, or to specify the low ranges. Additionally, the present

invention claims an alloy “substantially free of sulfur and phosphorus” (claim 28). The reference of record provides no teaching or explanation that would render this claimed limitation obvious as alleged by the Examiner. Accordingly, withdrawal of the rejection is respectfully requested.

With respect to JP 11293410, the Examiner states that the abstract discloses 0.0-2 wt% Nb and less than or equal to 3 wt% Co. The present invention, by contrast, claims a Nb concentration of about 2-4 or 2.8-3.2 wt% (claims 17 and 18), a range above that of the abstract, and a Co concentration of about 3.0 to 5.0 wt% (claim 20), a range above that of the abstract. Moreover, the abstract fails to address the S, P, and Ta requirements of the present invention. The Examiner states that the claims contents include zero and the cited reference is therefore not required to recite the elements. However, Applicants assert that there is no teaching or explanation that would render the above referenced claims regarding S, P, and Ta obvious to the skilled artisan. Accordingly, withdrawal of the rejection is respectfully requested.

With respect to JP 09049051, the reference fails to suggest the sulfur requirements of claim 6, the phosphorus requirements of claim 7, the chromium requirements of claim 9, or the tantalum requirement of claim 22.

In view of the above, Applicants submit the present application is in condition for allowance and respectfully request the rejections be withdrawn.

If any fee is due in conjunction with the filing of this response, Applicants authorize deduction of that fee from Deposit Account No. 06-0308.

Respectfully Submitted,

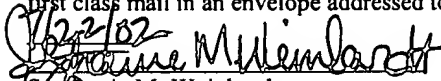
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

28. (Amended) A component of equipment [for use in molten melts which include magnesium, the component] formed from an alloy comprising iron, chromium, molybdenum, vanadium, niobium, cobalt, and tungsten, and at least one of boron and carbon, the alloy being substantially free of sulfur and phosphorus, wherein the component of equipment is suitable for use in molten melts which include magnesium, and is selected from a pumping member, impeller, bearing, post, and shaft.